

On the Two New Species, *Camponotus concavus* n.sp and *fuscus* n.sp from Korea (Hym., Formicidae)

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ABSTRACT—Two new species of genus *Camponotus* were found in Paekyang temple in Jeonnam. They were named as *Camponotus concavus* n.sp. and *fuscus* n.sp. on the basis of external fine feature. Accordingly Korean *Camponotus* will be 14 species.

Key words: Ants, Formicidae, *Camponotus*, South Korea, new Species

INTRODUCTION

Genus *Camponotus* is a world wide genus with a large number of species belonging to subfamily Formicinae. In Korea, this genus has been investigated by some researchers, Teranishi (1940), Kim (1963, 1970), Kim (1987) and Kim *et al.* (1993).

In 1940, two species of the genus were reported by Teranishi (1940). After that six species were reported by Kim (1963, 1970). In 1986, *Camponotus jejuensis* was newly described by Kim *et al.* As a result of examining the ant collections from Paekyang temple in Jeonnam province in 1992 and 1993, two new species were found and named, one is as *Camponotus concavus* n.sp and the other *Camponotus fuscus* n.sp.

MATERIALS AND METHODS

Materials for this paper were from Paekyang temple, Jeonnam. As soon as they were collected, they were fixed in alcoholic Bouin's solution for two or three days. Thereafter they were preserved in

eighty five percent ethanol. Examining all the collections by using stereozoommicroscope (Wild M8), their external morphological characters were analyzed and were described. In order to show their confident taxonomic position, new taxa were compared with their closely related species, *C. concavus* n.sp with *C. kiusuensis* and *C. fuscus* n.sp with *C. quadrinotatus*. Authors also measured some available quantitative characters to offer detailed informations for these taxa. CI=Cephalic index ($HW/HL \times 100$), SI 1=Scape index (SL/HW), SI 2=Scape index 2 (SL/HL), EW=Eye width, EL=Eye length, HW=Head width, HL=Head length, SL=Scape length. In figs, each scale is 1mm.

SYSTEMATICS

Camponotus concavus n.sp. 흑색매인왕개미

Description: Body length 7-13mm. Body dark black. Legs black to reddish brown. Head black and a little lustrous and pubescences distributed sparsely.

Head length 0.76-1.11 times as head width. Mandibles dark brown with weak punctures and each

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punctures with yellowish hairs. Teeth black and five, and the more toward the end, the sharper. Clypeus black with minute punctures all over and anterior area concave with a pair of long yellow hairs. Frontal triangle almost indistinct and connected area with frons indistinct. Vertex with abundant minute punctures and three pairs of long yellowish hairs and posterior area elliptical.

Compound eyes greyish black and protruded considerably and width 0.55-0.83 times as length. Antennal fossae comparatively small and in frontal view, base of scape protruded a little. Antennal scape black with minute soft hairs and much extending backward beyond posterior area of head. Antennal scape length 0.89-1.28 times as head length and basal segment of funiculus a little brownish. Funiculus yellowish brown and eleven segmented with abundant minute recumbent hairs.

Thorax black with abundant minute punctures. Pronotum black with abundant pubescences, but erect hairs absent. The groove between pronotum and mesonotum and the groove between pronotum and anepisternum distinct. Mesonotum black with minute punctures and hairs and a pair of erect hairs present on mesonotum. Metathorax black with a pair of spiracles and minute punctures.

Propodeum black and a little lustrous, with minute punctures and minute recumbent hairs and three pairs of long, sharp, yellow, erect hairs on the top. A pair of spiracles looks like a slit crack. Propodeum gently-sloping, but total slope from pronotum to propodeum arched strongly. Petiole black and thick scale form with three pairs of long, erect, yellowish, minute hairs on the top.

Abdomen black, five segmented, lustrous as head and thorax, with abundant pubescences. The connected areas between each segment a little brownish and sharp erect hairs distributed in a row and five or more erect hairs present on the tergite. This species live in trees and during daytime is hardly in sight and after September they come down under trees.

MATERIALS EXAMINED: Holotype; worker, Paekyang temple, Jeonnam, 27, VI, 1992 (K.G. Kim); Paratype; 4 workers, Paekyang temple, 27, VI, 1992 (K.G. Kim); 6 workers, Mt. Keryong, Chungnam, 20, IX, 1992 (K.G. Kim); 20 workers, Kochang, Jeonbug, 1, VII, 1993 (K.G. Kim); 30 workers, Mt. Keryong, 20, IX, 1993 (K.G. Kim) preserved in Dept. of Molecular Biology, Wonkwang University.

MEASURED VALUE: CI=72.50-111.48, SI=1=100.00-153.34, SI 2=77.93-127.78, EW=0.295-0.443, EL=0.422-0.633, HW=1.298-3.045, HL=1.612-3.045, SL=1.881-2.418

REMARKS: Though this species resembles *C. kinsuensis*, they can be separated following character analysis in Table 1.

Table 1. Comparison of the characters between *C. concavus* n.sp and *C. kinsuensis*.

	<i>C. concavus</i> n.sp	<i>C. kinsuensis</i>
Clypeus	much concave	a little concave
Colour	black and hustrous	dark brown except brown legs
Bodylength	7.9mm	7.9mm
Habitat	in the dead tree	in the trees and vicinity of root

Camponotus fuscus n.sp 나도네왕개미

Description: Head vary from yellow to brown, with minute dense punctures all over and head length same as head width. Mandibles brown and lustrous, with rough punctures. Teeth dark black and five and short, but sharp. Long curved yellow hairs present on the end of each tooth. Clypeus yellow and lustrous, with abundant minute punctures. Clypeus protruded totally and anterior area of clypeus concave, but it looks like a cut slope in ventral view and a long erect hair present on the middle area. Separated line between clypeus and frontal triangle indistinct. Frons vary from yellow to dark brown, with abundant dense minute punctures. Vertex with minute

punctures all over. Ocelli absent. Posterior marginal line nearly straight.

Compound eyes dark grey and almost not protruded outward and width 0.60 times as length. Antennal fossae comparatively large and two third of base of scape naked. Scape yellowish brown, with abundant pubescences. Antennal scape extending a little backward as far as posterior marginal area of head and 0.8 times as head length. Five or more erect hairs present on the base of funiculus. Funiculus eleven segmented and erect hairs absent in each segment, but minute recumbent hairs present abundantly. *

Pronotum light yellowish brown, with minute punctures and abundant pubescences, without any erect hairs. The groove between pronotum and mesonotum and the groove between pronotum and episternum distinct. Pronotum dark brown and a pair of erect hairs presents on the top. The groove between mesonotum and metanotum and the groove mesonotum and propodeum indistinct. Propodeum dark brown and slope-bended much. Propodeal spiracles elliptical, with a pair of long erect hairs. Petiole dark yellowish brown and scale form, with long yellowish brown erect hairs on the top.

Abdomen five segmented, with long sharp erect hairs on the posterior marginal area of each segment, but sparsely distributed on the middle area of each segment. A pair of white spots presents on the first segment and on the second segment among four white spots. Never the spots on the second segment meet the first segment.

MATERIALS EXAMINED: Holotype; worker, Paekyang temple, Jeonnam, 27, VI, 1992 (K.G. Kim); Paratype; 2 workers, Paekyang temple, Jeonnam, 27, VI, 1992 (K.G. Kim) preserved in Dept. of Molecular Biology, Wonkwang University.

MEASURED VALUE: CI = 100.00, SI 1 = 80.00, SI 2 = 80.00, EW = 0.2683, EL = 0.4477, HW = 1.79, HL = 1.79, SL = 1.43

REMARKS: Though this species resembles *Camponotus quadrimaculatus*, they can be separated

following character analysis in Table 2.

Table 2. Comparison of the characters between *C. fuscus* n.sp. and *C. quadrimaculatus*.

	<i>C. fuscus</i> n.sp.	<i>C. quadrimaculatus</i>
Clypeus	much concave	a little concave
Colour	from brown to yellowish brown	black all over
Body length	5-7mm	3-5mm
Abdomen spots	two pairs and spots on the second segment not overlap with first segment	two pairs and spots on the second segment overlap with first segment

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적 요

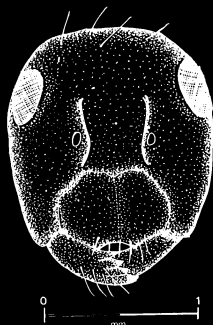
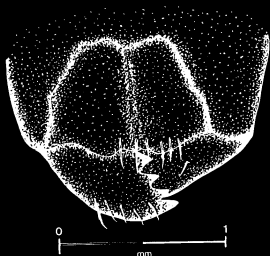
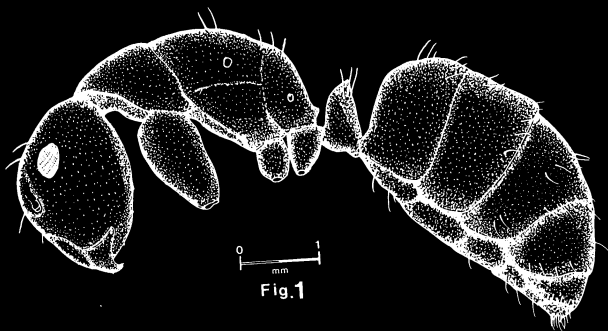
한국산 왕개미속 2신종, *Camponotus concavus* n.sp.와 *Camponotus fuscus* n.sp.에 대하여(벌목, 개미목)

김 병 전 · 김 기 경
(원광대학교 분자생물학과)

왕개미속(*Camponotus*) 2신종이 전남 백양사 주변에서 채집 확인되어 *Camponotus concavus* n.sp.와 *Camponotus fuscus* n.sp.로 명명하여 보고한다. 따라서 한국산 왕개미속은 모두 14종이 된다.

EXPLANATION of FIGURES

- Fig. 1. Profile view of *Camponotus concavus* n.sp.
Fig. 2. Frontal view of clypeus and teeth of *Camponotus concavus* n.sp.
Fig. 3. Frontal view of head of *Camponotus concavus* n.sp.
Fig. 4. Profile view of *Camponotus fuscus* n.sp.
Fig. 5. Frontal view of clypeus and teeth of *Camponotus fuscus* n.sp.
Fig. 6. Frontal view of *Camponotus fuscus* n.sp.



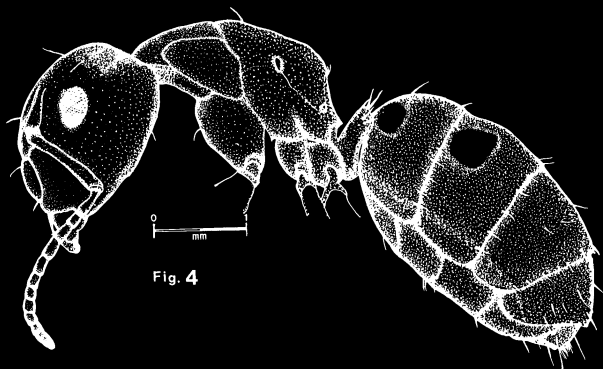


Fig. 4

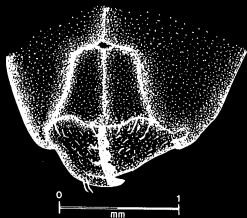


Fig. 5

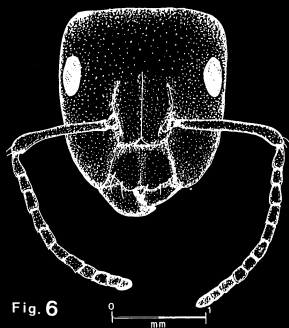


Fig. 6